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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Yiqun Lu

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SCHMEISER, OLSEN & WATTS
22 CENTURY HILL DRIVE
SUITE 302
LATHAM, NY 12110

EXAMINER

CHANG, JEFFREY HAO-WEI

ART UNIT

PAPER NUMBER

4177

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/598,694	Applicant(s) LU, YIQUN	
	Examiner JEFFREY H. CHANG	Art Unit 4177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 19-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 19-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In response to the Preliminary Amendment filed on September 8, 2006, claims 5-18 have been cancelled, claims 1-4 and the newly added claims 19-34 are pending.

Specification

2. The abstract of the disclosure is objected to because the form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities: The term--This application is a 35 USC 371 of PCT/CN05/00317, filed on 3/16/05 which claimed the foreign priority of China application Serial No. 200400255977 filed on 3/18/2004 and application Serial No. 200400265343 filed on 4/20/2004.-- should be recited on Pg. 1, line 1, so as to update the status. In addition, the terms "PCB.said" (Pg. 2, line 14), "lens accessory 3" (Pg. 8, line 9), "capsule 12.In" (line 10), "figure 2." (line 14), "Controller 8" (line 20), "controller 8" (line 21), "image sensor 5" , "objective lens accessory 5", "lens 7" (line 22), "microwave transceiver 9" (lines 24-25), "figure 3" (Pg. 9, line 1), "ACIS" (line 6), "US" (line 14) and "data 8.And when" (pg. 10, line 16) should be respectively recited as --PCB. The--, --lens accessory 51--, --capsule 12. In--, --figure 4.--, --Controller 42--, --controller 42--, --image sensor 6--, --objective lens accessory 51--, --lens 5--, --microwave transceiver 43--, --figure 5--, --ASIC--, --U1-- and --data 8. When--, so as to overcome the typographic errors. Further, the term "outer shell 9" (Pg. 5, line 13) should be deleted, so as to clarify the confusion. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-4 and 19-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-4 and 19-34, the recitation therein is unclear and confusing. The structural connections and cooperative relationships among the claimed structural elements, *inter alia*, intelligent capsule, image receiving device, outer shell, image information acquiring device, image signal processing and transmitting device and light source, have not been set forth. In other word, the recitations in these claims are merely directed to an aggregation of parts without setting forth their functions as well as their interconnections and interrelationships as required. In addition, it is unclear as to whether the “outer shell & image information acquiring device” and “signal processing and transmitting device” are directed to a single structural element or they are directed to two individual structural elements. Further, the antecedent basis for “component or component set”, “the intelligent device” (as per claim 2), “the rear cover” (as per claim 19), “the unit members” (as per claim 20), “CPU” (as per claim 23), “said image compression processor” (as per claim 28), “the actions” (as per claim 33), and “the carrier capsule” (as per claim 34) is lacking. Furthermore, the references for “component or component set” (as per claim 2) are unclear.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 1-3, 19, 21 and 23 are rejected under 35 U.S.C. 102(a) as being anticipated by Takizawa et al. (US Pub. No. 2004/0176685 A1)(hereinafter as Takizawa et al'685).

Regarding claim 1, Figs. 1A-2, 7-11 and 13-23 of Takizawa et al'685 disclose a capsule pattern endoscope comprising intelligent capsule (3) and image receiving device (i.e. extracorporeal unit 5) with the intelligent capsule comprising outer shell (i.e. main body 21) & image information acquiring device (23, 25) installed on the outer shell, image signal processing and transmitting device (i.e. communication circuit 28), light source (26), power source (29) and the image information acquiring device comprising image sensor (i.e. image pick-up element 25) and lens optical system (23), wherein the intelligent capsule has PCB structure on its outer shell (i.e. flexible printed circuit 32).

Regarding claim 2, Takizawa et al'685 discloses that a component or component set inside the intelligent device are directly welded onto the PCB ([0056]).

Regarding claim 3, Figs. 1A-2, 7-11 and 13-23 of Takizawa et al'685 discloses that the image information-acquiring device includes image compression processor (i.e. processing circuit 27) and the image signal-transmitting device includes microwave transceiver (i.e. communication circuit 28) that sends compression image data and controls image data ([0055]).

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Regarding claim 19, Figs. 1A-2, 7-11 and 13-23 of Takizawa et al'685 discloses that antenna components (33) are provided on the rear cover of the outer shell.

Regarding claim 21, Takizawa et al'685 discloses that the PCB is soft PCB ([0056]).

Regarding claim 23, Figs. 1A-2, 7-11 and 13-23 of Takizawa et al'685 discloses that the component or component set includes controller (i.e. processing 27), image compression processor (i.e. processing 27), radio transceiving signal processing chip (i.e. communication 28) and antenna component (33) dominated by image sensor (i.e. image pick-up element 25) and CPU (27a).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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9. Claims 20, 24, 25 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US Pub. No. 2004/0176685 A1)(hereinafter as Takizawa et al'685) in view of Gazdzinski (US Pub. No. 2001/0051766 A1).

Regarding claim 20, it is noted that Takizawa et al'685 does not disclose integrated unit members as required. However, Gazdzinski discloses that the unit members in the outer shell are provided in an integrated manner wholly or partly ([0156], lines 1-19). Hence, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the capsule endoscope of Takizawa et al'685 with the feature of the unit members in the outer shell are provided in an integrated manner wholly or partly as taught by Gazdzinski as both Takizawa et al'685 and Gazdzinski are directed to the kind of capsule pattern endoscope. The motivation for combining these references is that they are directed to the same field of endeavor (capsule endoscopes) and that integrated circuit members in Gazdzinski addresses the problem of limited space seen in many capsule endoscope applications (Gazdzinski: [0156], lines 1-19).

Regarding claim 24, it is noted that Takizawa et al'685 does not disclose an image cutting device as required. However, Gazdzinski discloses that the image sensor or image compression processor includes image-cutting device ([0210], lines 1-17). Hence, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the capsule endoscope of Takizawa et al'685 with the feature of the image sensor or image compression processor includes image-cutting device as taught by Gazdzinski as both Takizawa et al'685 and Gazdzinski are directed to the kind of capsule pattern endoscope, so as to provide a smaller image size results in the benefits of reduced data transmission time and reduced space required for memory allocation.

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Regarding claims 25 and 32, it is noted that Takizawa et al'685 does not disclose the image compression rate adjusting device as required. However, Gazdzinski discloses that the image compression processor includes image compression rate adjusting device ([0185], lines 16-25). Hence, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the capsule endoscope of Takizawa et al'685 with the feature of the image compression rate adjusting device as taught by Gazdzinski as both Takizawa et al'685 and Gazdzinski are directed to the kind of capsule pattern endoscope. The motivation for combining these references is that they are directed to the same field of endeavor (capsule endoscopes) and Gazdzinski discloses that image compression may be performed using pulse code modulation or delta pulse code modulation. PCM and DPCM require different compression rates, and an image compression rate adjusting device is inherently required to switch between the two compression techniques.

Regarding claim 31, Fig. 2 of Takizawa et al'685 discloses that the image sensor U2 uses CMOS image sensor ([0133], lines 4-8), image compression processor U1 uses CPU, DSP or ASIC processor (27a) and the microwave transceiver JP 1 uses microwave communication chip (28).

Regarding claim 33, Figs. 1B and 2 of Takizawa et al'685 disclose that the image-receiving device is provided with external controller (i.e. PC 6), the intelligent capsule is provided with corresponding controller (i.e. processing 27). The external controller sends microwave control commands to the intelligent capsule so that the controller intelligent capsule completes the actions ([0055]).

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Regarding claim 34, it is noted that Takizawa et al.'685 does not disclose the carrier capsule as required. However, Gazdzinski discloses that a carrier capsule (i.e. container 1904) is provided inside the intelligent capsule ([0270], lines 1-9). Hence, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the capsule endoscope of Takizawa et al.'685 with the feature of the carrier capsule is provided inside the intelligent capsule as taught by Gazdzinski as both Takizawa et al.'685 and Gazdzinski are directed to the kind of capsule pattern endoscope, so as to provide complete sampling or medicine feeding.

10. Claims 22, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US Pub. No. 2004/0176685 A1)(hereinafter as Takizawa et al.'685) in view of Mizuno (US Pub. No. 2002/0198439 A1).

Regarding claim 22, it is noted that Takizawa et al.'685 does not disclose that the PCB is drum shape and that components are welded to the PCB. However, Figs. 1 and 2 of Mizuno disclose that the PCB (i.e. substrate 3) is in the shape of drum and component or components (i.e. image pickup element 4 and illuminating elements 5) are welded onto the outer surface of the drum-shaped PCB. Hence, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the capsule endoscope of Takizawa et al.'685 with the feature of the PCB is in the shape of drum and component or components are welded onto the outer surface of the drum-shaped PCB as taught by Mizuno as both Takizawa et al.'685 and Mizuno are directed to the kind of capsule pattern endoscope. The motivation for combining these references is that they are directed to the same field of endeavor (capsule

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endoscopes) and that drum-shaped substrates are often used because of the cylindrical geometry of capsule endoscopes.

Regarding claims 29 and 30, Takizawa et al.'685 discloses that a protective layer is provided for the component or component sets externally, and the main body (21) protect the internal circuitry from external bodily fluids.

11. Claims 4 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US Pub. No. 2004/0176685 A1)(hereinafter as Takizawa et al.'685) in view of Takizawa et al. (US Pub. No. 2003/0020810 A1)(hereinafter as Takizawa et al.'810).

Regarding claims 4 and 27, it is noted that Takizawa et al.'685 does not disclose the outer shell bracket as required. However, Fig. 14A and 14B of Takizawa et al.'810 disclose that an outer shell bracket (i.e. capsule body 61) that can support the PCB is provided (as per claim 4) and that the PCB is a soft PCB and component or component sets are welded onto the bracket of the outer shell (as per claim 27). Fig. 14A of Takizawa et al.'810 is apparent that the capsule body (61) supports PCB structures such as the LED drive circuit (24) and the communication and control circuit (64); and Fig. 14B of Takizawa et al.'810 is apparent that the bracket (i.e. capsule body 61) is separate from the external capsule shell (i.e. transparent cover 62 and back cover 63) as is structurally required. Hence, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the capsule endoscope of Takizawa et al.'685 with the feature of the outer shell bracket as taught by Takizawa et al.'810 as both Takizawa et al.'685 and Takizawa et al.'810 are directed to the kind of capsule pattern endoscope. The motivation for combining these references is that they are directed to the same

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field of endeavor (capsule endoscopes), have substantially the same structure, and perform substantially the same functions (imaging body structures).

12. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US Pub. No. 2004/0176685 A1)(hereinafter as Takizawa et al'685) in view of Takizawa et al. (US Pub. No. 2003/0020810 A1)(hereinafter as Takizawa et al'810) and further in view of Mizuno (US Pub. No. 2002/0198439 A1).

Regarding claim 26, it is noted that the teachings of Takizawa et al'685 and Takizawa et al'810 do not disclose the outer shell bracket as required. However, Figs. 1 and 2 of Mizuno disclose that the PCB (i.e. substrate 3) is in the shape of drum and component or components (i.e. image pickup element 4 and illuminating elements 5) are welded onto the outer surface of the drum-shaped PCB. Hence, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the capsule endoscope of Takizawa et al'685 and Takizawa et al'810 with the feature of the PCB is in the shape of drum and component or components are welded onto the outer surface of the drum-shaped PCB as taught by Mizuno as both Takizawa et al'685, Takizawa et al'810 and Mizuno are directed to the kind of capsule pattern endoscope. The motivation for combining these references is that they are directed to the same field of endeavor (capsule endoscopes) and that drum-shaped substrates are often used because of the cylindrical geometry of capsule endoscopes.

13. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US Pub. No. 2004/0176685 A1)(hereinafter as Takizawa et al'685) in view of Takizawa et al.

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(US Pub. No. 2003/0020810 A1)(hereinafter as Takizawa et al'810) and further in view of Gazdzinski (US Pub. No. 2001/0051766 A1).

Regarding claim 28, it is noted that the teachings of Takizawa et al'685 and Takizawa et al'810 do not disclose the image compression rate adjusting device as required. However, Gazdzinski discloses that the image compression processor includes image compression rate adjusting device ([0185], lines 16-25). Hence, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the capsule endoscope of Takizawa et al'685 and Takizawa et al'810 with the feature of the image compression rate adjusting device as taught by Gazdzinski as both Takizawa et al'685, Takizawa et al'810 and Gazdzinski are directed to the kind of capsule pattern endoscope. The motivation for combining these references is that they are directed to the same field of endeavor (capsule endoscopes) and Gazdzinski discloses that image compression may be performed using pulse code modulation or delta pulse code modulation. PCM and DPCM require different compression rates, and an image compression rate adjusting device is inherently required to switch between the two compression techniques.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Yokoi et al (US Pub. No. 2005/0043634 A1) discloses a flexible PCB structure (see Fig. 11, component 122 and [0122]).

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Gilad et al (US Pub. No. 2006/0015013 A1) discloses LEDs attached to a PCB on the outside of the capsule.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY H. CHANG whose telephone number is (571)270-5336. The examiner can normally be reached on Monday - Thursday, 8:00 am - 5:00 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe H. Cheng can be reached on 571-272-4433. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JC
9/24/2009

/Joe H Cheng/
Supervisory Patent Examiner
Art Unit 4177